Regional SSD, Field and Science Perspectives

FY17 and beyond

Andy Edman - Western
Ken Johnson - Eastern
Bill Ward - Pacific
Greg Patrick - Southern
Eugene Petrescu - Alaska
Jeff Craven - Central

NCEP Production Suite Review
College Park MD

December 5, 2016

SSD Concerns and Priorities

What we want to learn and discuss during the next 3 days

- **UMAC Response**
  - *What are the proposals for change and the approx timelines for those changes at NCEP?*

- **RTMA/URMA - Critical to NBM verification and bias correction**
  - *Program is critical to the success of the NBM, yet during a recent meeting, very few of the core recommendations to improve RTMA/URMA were implemented*. **4 recommendations from SOO team:**
    - *Fix Observation locations*
    - *Improve Observation QC*
    - *Implement neighbor observational buddy check to push the first guess background field toward the obs*
    - *Fix error covariance fields*

- **HRRR and Convective Allowing Ensemble - Next Generation warning Program**
  - *Short range plans for HRRR and the HRRR-E. SSD Chiefs recommend sunsetting NAM and applying resources to CAM ensemble development in support of next generation warning program (FACETS)*
    - *Facilitate EMC and OAR development resources to work together to develop a single robust CAM system*
    - *Improve Physics to help with DSS impacts- eg aerosols - smoke and NCAR Ensemble System*

- **NBM Support and Calibrated Global Ensemble Model Output - Next Generation Forecast program**
  - *NBM should be changing NCEP ideas about the model suite; one of AA's and STI's top priorities*
  - *Field needs calibrated/reliable probabilities to produce trusted DSS messaging*
  - *Model development priorities should be based on impact to NBM gridded skill -- ie validate model skill using NBM grid verification*
  - Expand science based impact - coupled models -- focus on improving physics

SSD Concerns and Priorities

What we want to learn and discuss during the next 3 days

- **Data Assimilation**
  - *What is happening now with data assimilation and what are the plans for implementing improved techniques?*
  - *Do we really have a strategic plan to identify deficiencies and focus priorities?*
    - *How well are these priorities tied to the goals of next gen warning and forecast programs*
    - *Example - major focus on improving convection and assoc energy transfers in short range CAMS*
    - *Example - global model - arctic short waves, latent heat transfer associated with tropical convection*
  - *Improve wind and moisture fields globally*

- **Current and Near-future Utilization Charts for Operational Modeling Suite**
  - *How much CPU is available today and in future for HRRR-E and other priorities?*
  - *Can current resources allocated toward CFS production be re-allocated to HRRR-E per UMAC report?*

BACKUP SLIDES

Field Priorities

- Robust 3km CAM ensemble data delivered into AWIPS
  - Including calibrated probabilities which require historical model performance stats
- Time lagged ensemble information, processed to aid DSS
- Merged model data, model climatologies and real climatologies that put the deterministic and ensemble forecast into historical perspective to improve forecaster confidence and DSS messaging
- Automated, robust data-fusion efforts (e.g. ProbSevere) which merges model, radar, satellite and lightning data and delivers an early version of FACETS
- Coupled models (like hydro, WaveWatch3) to better define impacts
- Robust model verification in complex terrain (e.g. western 1/3 of U.S.)
- New frontiers like the fire/smoke program which is using the improved satellite based fire detection with much better model aerosol physics